Gravina Access Project

Ketchikan Gateway Borough Economic Forecasts

Draft

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Table of Contents

List of Tables

List of Figures

1.0 Introduction

This document is a technical memorandum that briefly describes current socioeconomic conditions and possible futures that could occur in the Ketchikan area economy for a study period from 2000 until 2025. For this analysis, the Ketchikan area includes the Ketchikan Gateway Borough and the City of Ketchikan. Because of similarities in economic structure and strong economic ties within Southern Southeast Alaska, statements made regarding the economic outlook may be inferred for the larger region. General references to the Ketchikan area may be relevant for surrounding communities within Ketchikan's area of influence. This document also discusses various community perceptions about the future and provides an employment forecast for each major economic sector. Low-, base-, and high-case development scenarios are presented, along with population and employment forecasts.

The development scenarios describe factors that could influence vehicle traffic levels for the access alternatives. The scenarios represent a range of possible alternative futures and incorporate assumptions about future changes in major industries, employment, and population that could occur in Ketchikan's economy. The scenarios are based on current socioeconomic information and various perceptions about the future. The scenarios should be viewed as only perceptions—reality could be significantly different, depending on the actual events that take place in the area.

The scenarios have been developed from a number of information sources, including available economic information, interviews, and focus groups with informed members of the Ketchikan community. These members represent a wide range of industries, outlooks, and perspectives, and were valuable sources of information about the economic outlook of the Ketchikan area. For more comprehensive information about current socioeconomic and industrial conditions and the sources for this information, the document titled *Affected Environment* (HDR 2000) should be consulted.

2.0 Major Economic Sectors

This section depicts the current economic conditions and recent historical trends in the area and perceptions about the future of each industry.[1] Presented for each sector are a brief description of current and historical conditions, a summary of community perceptions as derived from interviews and focus groups with residents, and a graph depicting relevant sector employment forecasts.

2.1 Forest Products Sector

The forest products industry has been an important part of Alaska's economy for more than half a century. The Tongass Land Use Management Plan (TLMP) issued in 1997 reduced allowable harvest levels, and most Asian markets are experiencing downturns in price and demand. The Sitka pulp mill closed in 1993 and the Ketchikan pulp mill closed in 1997 and this has affected employment levels. Employment in the forest products sector went from 446 jobs in 1988 to 383 jobs in 2000—a loss of 63 jobs and an annual average rate of decline of 1.3%.

Because of changes in the forest products industry, including the reduced supply of Tongass National Forest timber and lower quality of the remaining timber, producers in Ketchikan have begun to explore and develop markets for value-added products. In the 10 years from 1988 through 1998, the total value of international exports declined by 56.3%—from $474.7 million to

[1] These scenarios incorporate information from focus groups and interviews with various informed members of the study area community. A list of persons contacted for this effort is at the end of this memorandum.

$207.6 million—and the value of international exports of soft wood logs declined by 27.8%—from $261.6 million to $188.8 million.

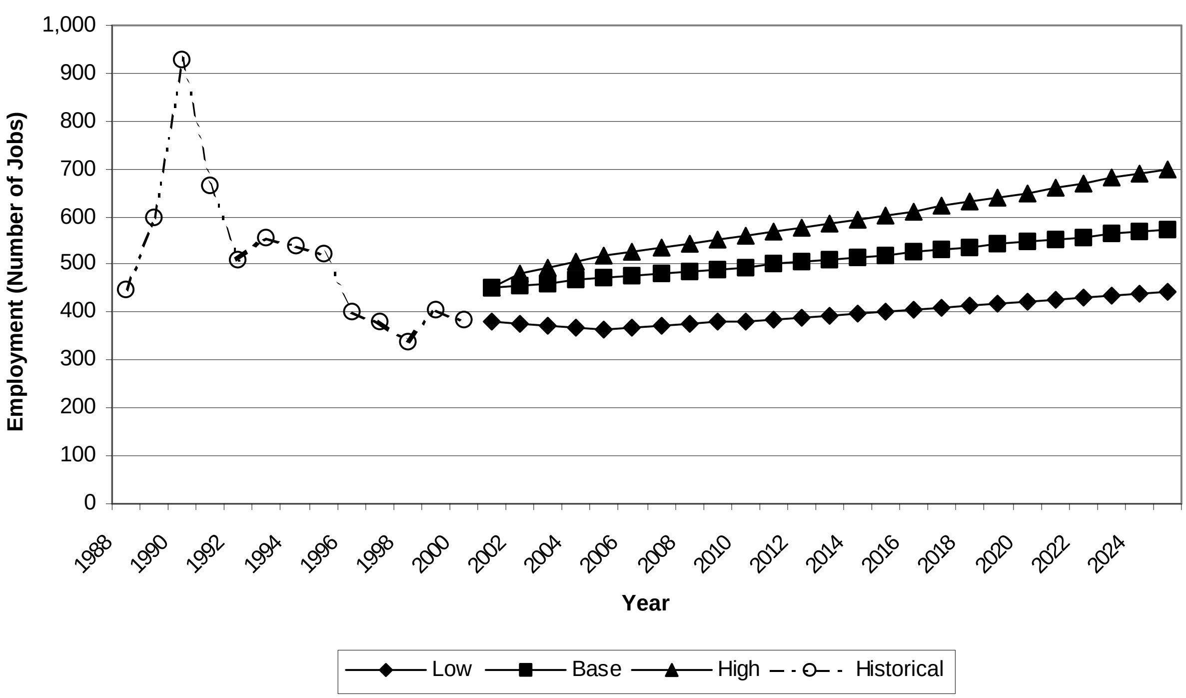
Timber harvests in the Ketchikan Ranger District are expected to average about 19 million board feet annually in the future. This volume is about half of the previous harvest levels in the district. Similar decreases are anticipated in the Thorne Bay and Craig ranger districts, other areas where Ketchikan-based companies obtain part of their timber requirements. Some residents expect that one of the remaining large sawmills in Southeast Alaska will close because of the decrease in resource availability.

If the potential near-term U.S. Forest Service (USFS) timber sale occurs on Gravina Island, it will likely take place before access improvements are implemented, and therefore will not contribute to forest product movement between Ketchikan and Gravina Island. The USFS roads that might be developed, however, would ultimately increase traffic volumes between Revilla and Gravina islands for recreational and other uses.

Residents working in the forest products industry stated that the industry is moving into a new phase, with mills specializing and sharing resources, and value-added products as a focus of existing companies. These new developments are expected to be the primary source of future growth in the industry.

Figure 1 depicts historical and projected employment through 2025 for the forest products sector in the low-, base-, and high-case scenarios. The complete scenarios are presented in Section 6.0—the bulleted items that follow Figure 1 describe the scenario elements that specifically pertain to forest products.

Figure 1. Historical and Projected Employment in the Ketchikan Gateway Borough Forest Products Sector, 1988-2025



Scenario Assumptions:

- **Low Case.** There is a downward trend in Tongass timber harvests due to administrative action and lawsuits. One mill in the Ketchikan area closes within the next few years, and employment in the forest products sector declines through 2005. After that date, value-added manufacturing of forest products results in modest employment growth of 1% per year.

- **Base Case.** Tongass timber harvests stabilize and a new veneer plant opens during 2001 with about 70 new jobs. Mills share harvests from timber sales, with the work distributed according to which mill is best suited to process certain types of logs. Employment in the forest products sector increases modestly—by 1% each year—after a veneer plant opens.

- **High Case.** Tongass timber sales are planned to assist the forest products industry, and timber harvests increase from current levels. A new veneer plant and a centralized sorting yard open in 2001-2003. Loggers reside in Ketchikan and commute to work during the workweek rather than living in camps. New, value-added manufacturing expands near existing and new mills. Employment in the forest products sector increases by 2.5% per year through about 2005 and by 1.5% each year for the balance of the study period.

2.2 Manufacturing Sector

2.2.1 Seafood Sector

Ketchikan's seafood industry, like many industries in the area, is undergoing dramatic changes in response to changes in the world market for salmon, the cornerstone of the industry. The combined effect of the changes within the seafood sector could hurt Ketchikan's economy by reducing employment and earnings for fishermen.

Gross earnings for the seafood processing industry in Ketchikan from 1996 to 1998 ranged from approximately $9.2 million to $10.4 million. As a portion of gross earnings for all industry in Ketchikan, seafood processing represented approximately 4.0% to 4.4% during that 3-year period.

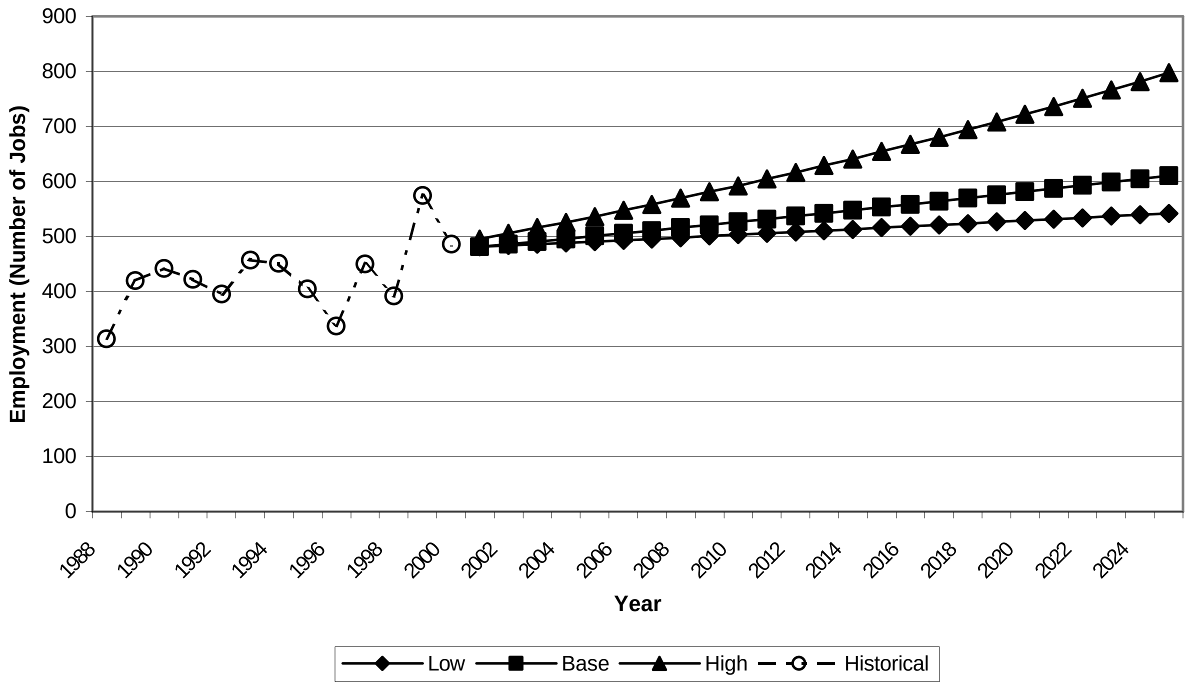
Persons employed in commercial fish harvesting are predominantly self-employed. Crewmembers typically work for a share of the gross revenue, while the owner receives a proprietor's income. The number engaged in commercial fishing peaked around 1980 and has since declined. Commercial fish harvesting provided approximately 670 jobs during 1998[2] in the Ketchikan area.

The seafood sector comprises of two sectors: harvesting and processing. Interviews indicated that most residents do not foresee a significant increase in harvesting employment. Some residents, however, believe that the processing sector will expand slightly. These sources indicated that initially, growth in the processing sector will occur as businesses attempt to move to year-round operations of their current facilities. A possible source of future growth could be value-added processing—particularly if a fish meal plant is developed to handle the waste stream of the processing plants. In fact, some residents do not believe that growth in the seafood industry will occur in Ketchikan without a fish meal plant. Historically, employment in the seafood processing sector went from 314 jobs in 1988 to 486 jobs in 2000—a gain of 172 jobs and an average annual rate of growth of 3.7%.

[2] Commercial fishing jobs do not typically last an entire calendar year.

Figure 2 depicts historical and low-, base-, and high-case projected employment for the seafood industry through 2025. The complete scenarios are presented in Section 6.0—the bulleted items that follow Figure 2 describe the scenario elements that specifically pertain to the seafood sector.

Figure 2. Historical and Projected Employment in the Ketchikan Gateway Borough Seafood Sector, 1988-2025



Scenario Assumptions:

- **Low Case.** There is no significant near-term change in seafood harvesting or the type of processing activities, and employment declines annually through 2002 due to competition from global competitors and increased productivity. After that date, additional value-added seafood processing and new fisheries result in 0.5% annual growth in employment.

- **Base Case.** There is no significant change in seafood harvesting and processing activities. Minor increases in value-added seafood processing result in employment increases of 1% annually.

- **High Case.** Several new nontraditional fisheries develop or expand in the Ketchikan area. Value-added processing, a new fish meal plant, and new fisheries result in employment increases of 2% annually for the seafood industry.

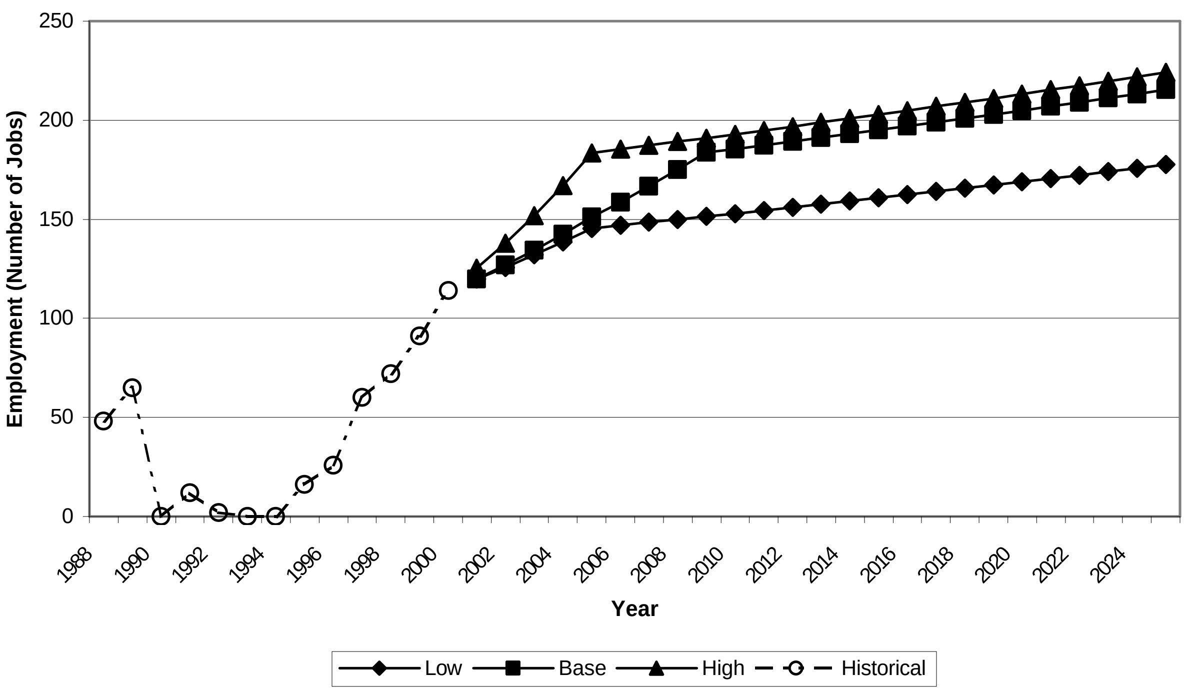
2.2.2 Shipyard Sector

Alaska Ship and Drydock, Inc. (ASD) has been an important part of Ketchikan's economy since the late 1970s, when Ketchikan community leaders recognized that constructing a shipyard capable of supporting the Alaska Marine Highway System (AMHS) ferries could strengthen Southeast Alaska's economy. Historically, employment at ASD went from 48 jobs in 1988 to 114 jobs in 2000—a gain of 66 jobs and an average annual rate of growth of 7.5%.

The shipyard is expected to grow quickly in the next few years due to planned capital improvements such as a second shiplift and the construction of facilities for vessel construction and lay up of vessels during winter. With the AMHS ferry system planning to acquire vessels to meet the requirements outlined in the Southeast Transportation Plan (SATP), and with numerous plans for improvements at the shipyard, the Ketchikan Shipyard is expected to remain a strong and valuable industry in the Ketchikan area.

Figure 3 depicts historical and projected employment through 2025 for the shipyard in the low-, base, and high-case scenarios. The complete scenarios are presented in Section 6.0—the bulleted items that follow Figure 3 describe the scenario elements that specifically pertain to the shipyard sector.

Figure 3. Historical and Projected Employment at Alaska Ship and Drydock, 1988-2025



Scenario Assumptions:

- **Low Case.** Capital improvements, including facilities to lay up vessels during the winter, result in employment increasing quickly through 2005, with modest employment growth of 1% per year after that date.

- **Base Case.** Capital improvements, including facilities to lay up vessels during the winter and a second shiplift, result in robust employment increases at the shipyard through 2009, with modest employment growth of 1% annually after 2009.

- **High Case.** A new shiplift and other capital improvements to enhance the shipyard's capabilities in new construction and repair—including facilities to lay up vessels during the winter—result in the shipyard almost doubling employment by 2005 with modest employment growth of 1% per year after 2005.

2.3 Tourism Sector (Services and Trade)

Tourism is the primary force behind employment in the trade and services sectors in the study area. Employment in these two industries is heavily dependent on growth in the number of visitors and their level of spending. Historically, employment in the trade sector increased from 1,225 jobs in 1988 to 1,374 jobs in 2000—a gain of 149 jobs and an average annual rate of growth of 1.0%; employment in the services sector increased from 2,149 jobs in 1988 to 2,376 jobs in 2000—a gain of 227 jobs and an average annual rate of growth of 0.8%. Overall, trade employment increased 12.2% from 1988 to 2000, and services employment increased 10.6% in the same time period.

The tourism industry in Alaska generates substantial income for the state and generates employment in a variety of industries such as transportation, retail trade, and services. The Ketchikan area, like many areas, has benefited from the substantial growth that has occurred in recent years in Alaska's tourism industry. From 1988 to 1998, there was a 137% increase in summer visitors to Ketchikan, with the cruise industry playing a major role in this growth. Nonresident visitors spent $949 million in Alaska from October 1997 through September 1998.

Almost unanimously, informed community members that were interviewed said they anticipate that tourism will be one of the major engines of growth in the community. In fact, some see tourism as the only significant growth industry in the community. A number of residents, however, questioned the sector's ability to continue the high growth rates that have occurred in the past, and expressed concern about the effect of a potential slowing of tourism growth on Ketchikan following the other economic shocks the community has experienced. Several residents noted the continuing integration of the cruise industry into the community. One example is the increased demand for medical services for the cruise industry. According to one interviewee, this tourism-related demand is beneficial to the hospital and the community because the demand enables the hospital to offset revenue losses following from closure of the pulp mill.

While the cruise industry has been growing at a steady pace, the number of independent visitors to Ketchikan has not increased substantially in recent years. However, expanded marketing by AMHS and daily ferry service between Ketchikan and other communities (as indicated in the SATP) may increase the number of independent visitors.

Another, longer-term development that will enhance independent visitation is development of a connection to Canada through the Bradfield Road corridor. In this document, this road development is not included in assumptions about the future because it is anticipated that such a road project, if it occurs at all, would occur toward the end of the study period.

Because tourism sector employment occurs primarily in the trade and services sectors, historical and projected employment for both of these sectors is depicted. The services sector is illustrated in Figure 4, and the trade sector is illustrated in Figure 5. The complete scenarios are presented in Section 6.0—the bulleted items that follow the figures describe the scenario elements that specifically pertain to the services and trade industries.

Figure 4.Historical and Projected Employment in the Ketchikan Gateway Borough Services Sector, 1988-2025

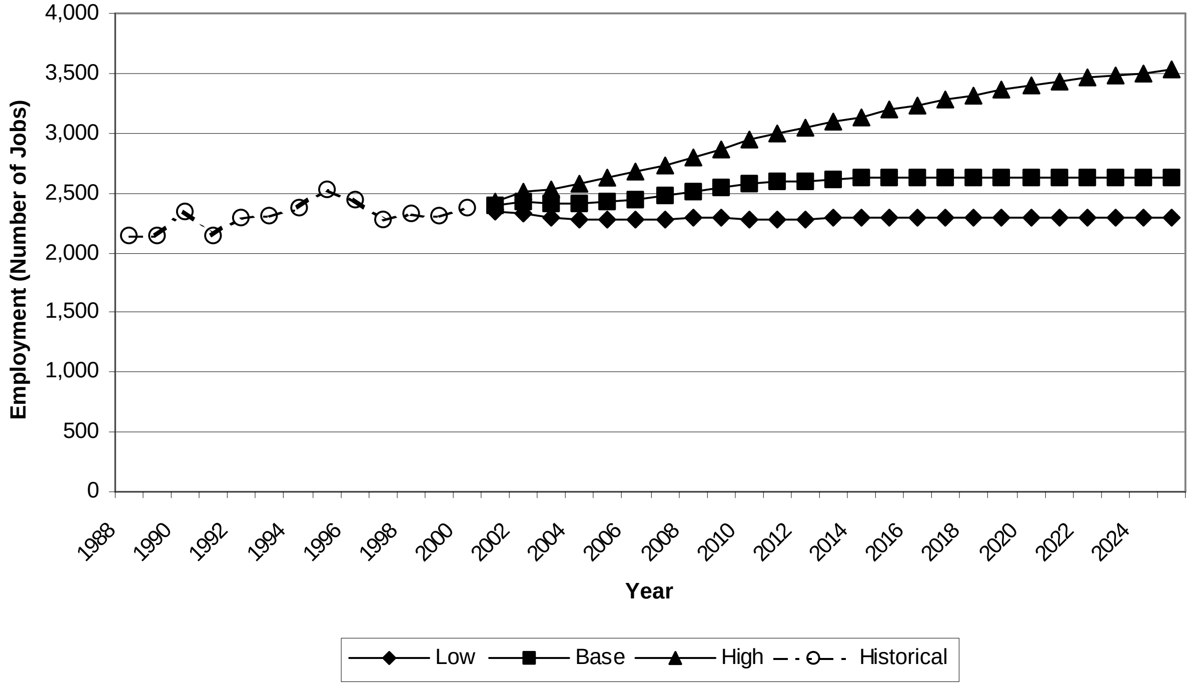
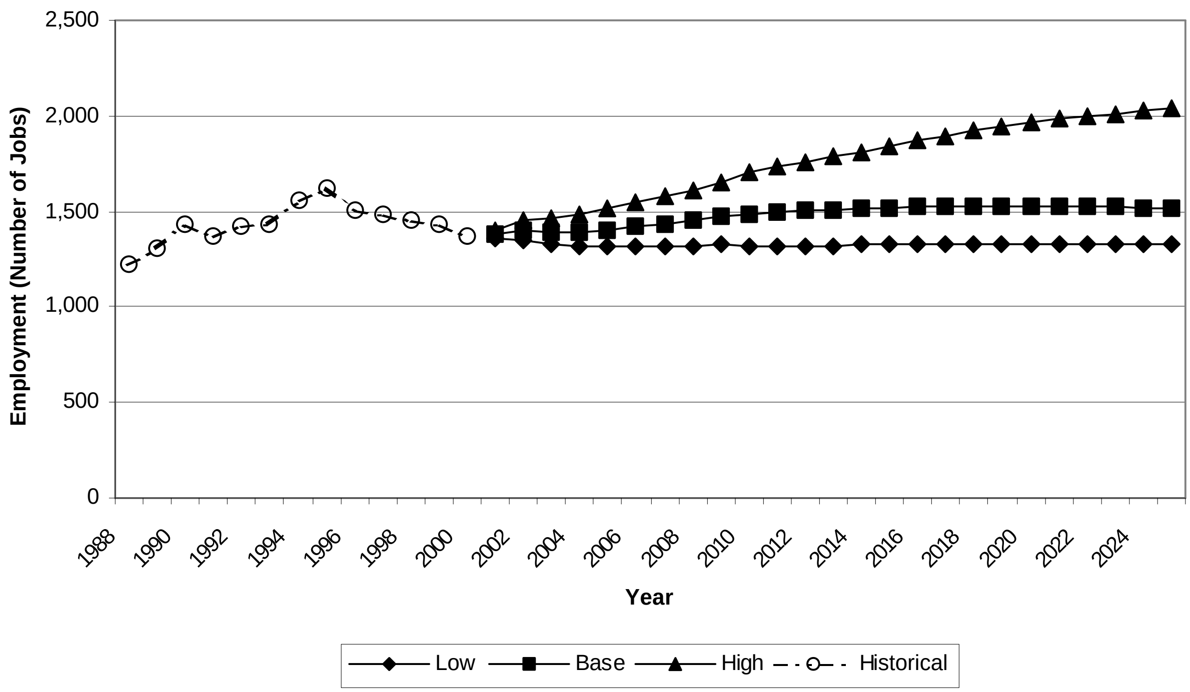


Figure 5. Historical and Projected Employment in the Ketchikan Gateway Borough Trade Sector, 1988-2025



Scenario Assumptions:

- **Low Case.** Tourism expenditures in Ketchikan increase at 3% annually through 2005 due to new venues, at 2% through 2010, and at 1% for the balance of the study period. The trade and services sectors contract at modest rates, and a loss of 131 jobs result by 2025, resulting in an annual rate of decline of 0.14%.

- **Base Case.** Tourism expenditures in Ketchikan increase at 4% annually from 2001 through 2005 due to new venues and an additional cruise ship dock, by 3% annually through 2010, and moderately for the balance of the study period. The trade and services sectors expand more rapidly than their historical growth rates due to the IFA ferry service and improved AMHS ferry service strengthening ties among Ketchikan and other communities. Businesses in Ketchikan improve the area's position as a regional center, and 402 jobs result by 2025 in the trade and services sectors (a 0.41% annual growth rate). Over time, growth in tourism and closer integration with Prince of Wales (POW) and other areas offset losses associated with the pulp mill closure.

- **High Case.** Tourism expenditures in Ketchikan increase at 7% annually through 2002, at 5% through 2010 due to new venues and the additional cruise ship dock, and moderately for the balance of the study period. The trade and services sectors expand to meet the needs of a closely integrated economic area. A new cruise ship dock is constructed to accommodate additional cruise ships calling in Ketchikan. The growth of tourism and closer integration with POW and other areas result in employment increasing at a robust rate for 5 years after the new ferry terminal is developed and moderating after that time. A total of 1,815 jobs result in the trade and services sectors by the end of the study period (an annual growth rate of 1.59%).

2.4 Government Sector

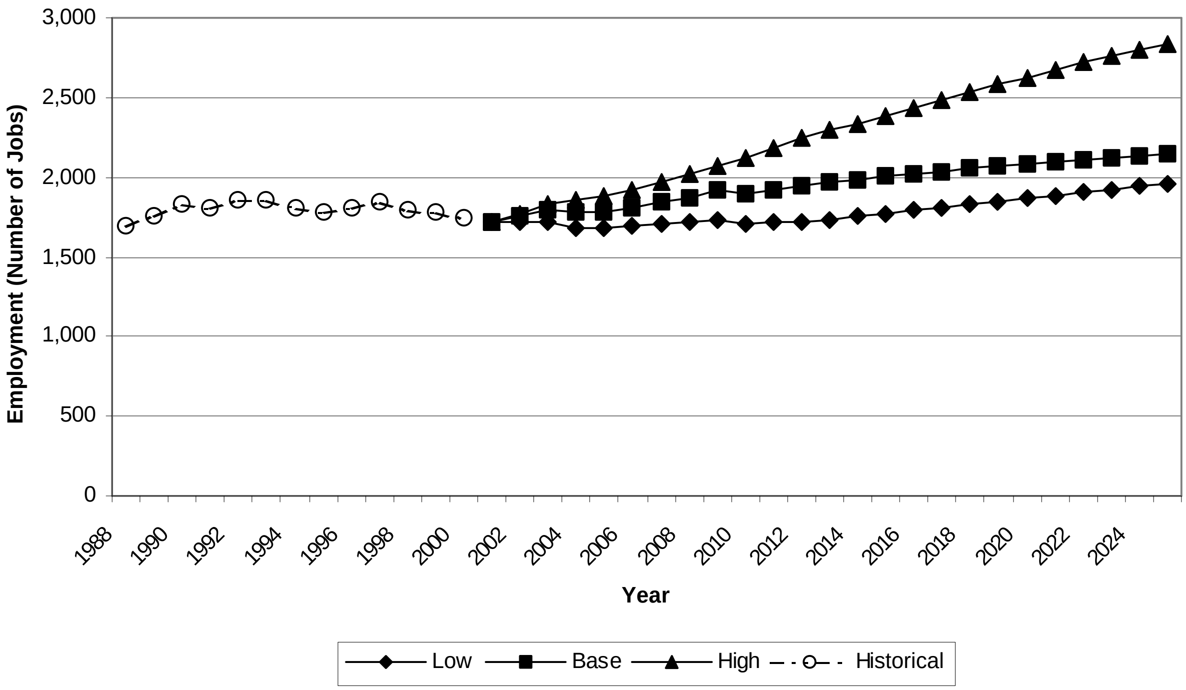
Government employment and spending play an extensive role in the economies of the Ketchikan area and Southeast Alaska in general. Local and state government employment is heavily dependent on the population of the area, the demand for government services, and available government revenue.

Government is a key employer in the Ketchikan area. In fact, government jobs represented 1,739 jobs or 24.4% of total wage employment in the Borough in 2000 and an average of 25.5% of employment between 1980 and 2000. Historically, employment in the government sector increased from 1,695 jobs in 1988 to 1,739 jobs in 2000—a gain of 44 jobs and an average annual rate of growth of 0.2%

Many residents anticipate consolidation of the city and borough governments. However, proponents of the consolidation effort anticipate minimal changes in local government employment. In fact, one interviewee suggested that only six positions might be eliminated as a result of consolidation. Future growth in local government employment is expected to result from future population growth. Residents expect stability in employment levels of the state and federal government, although a reduction in federal government employment could occur if timber harvests are reduced further.

Figure 6 depicts historic and projected employment through 2025 for the government sector in the low-, base-, and high-case scenarios. The complete scenarios are presented in Section 6.0 of the document—the bulleted items that follow Figure 6 describe the scenario elements that specifically pertain to the government sector.

Figure 6. Historic and Projected Employment in the Ketchikan Gateway Borough Government Sector, 1988-2025



Scenario Assumptions:

- **Low Case.** State revenues decline and state government spending and employment (which includes university employment) decline slightly. Federal spending and employment also decline slightly as USFS employment is reduced concurrently with fewer timber sales. Consolidation succeeds and local government employment (which includes school district employment) and expenditures decline to meet budget constraints through 2005. The Long Range Aid to Navigation (LORAN) Station at Shoal Cove closes in 2010 and 25 U.S. Coast Guard positions are eliminated. After that date, government employment increases in response to population growth and stabilized timber harvests.

- **Base Case.** State revenues stabilize and state government spending and employment change little over the duration of the study period. The LORAN Station at Shoal Cove becomes remotely operated in 2010, and 20 U.S. Coast Guard positions are eliminated. Consolidation succeeds and local government spending and employment stabilize with consolidation. Government employment increases after 2010 in response to population growth and other activities.

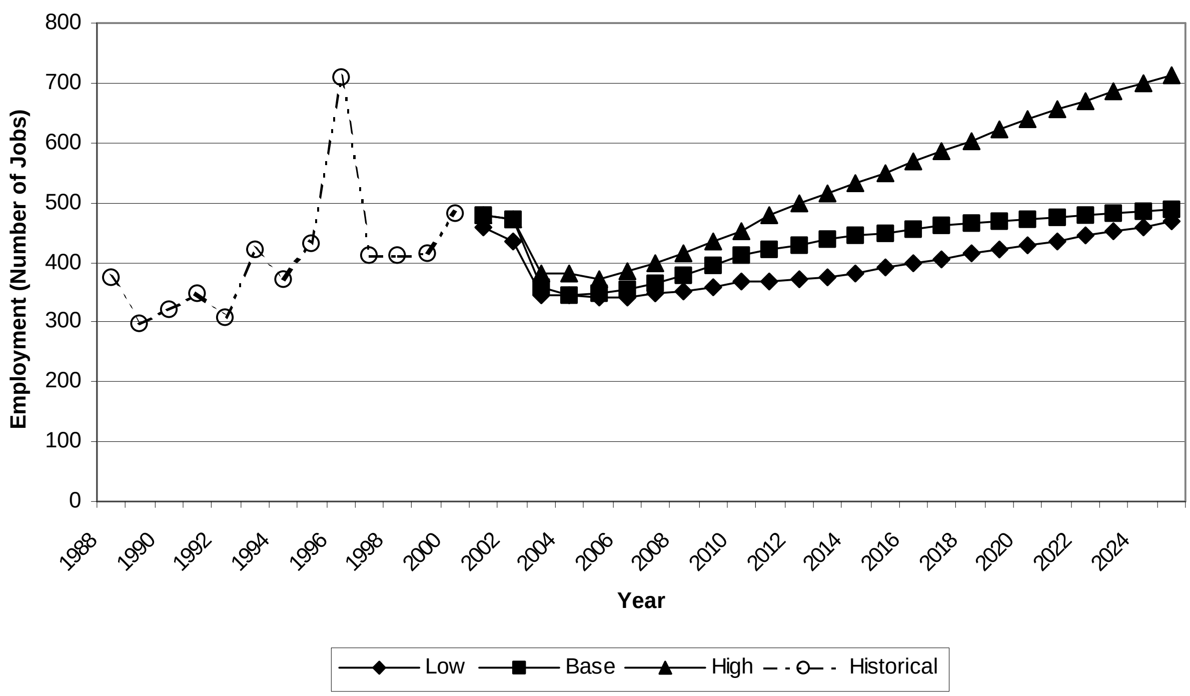
- **High Case.** State revenues stabilize early in this decade with changes in the state's fiscal system. State government spending begins to increase with that change. Federal spending and employment stabilize at current levels and begin to increase after about 2001 with the onset of larger timber harvests that are anticipated to be close to TLMP levels. Consolidation fails and no change in local government employment occurs in the near term. In the long term, employment increases over time in response to population growth and the provision of additional services.

2.5 Construction Sector

Construction employment plays a moderate role in the economy of the Ketchikan. In fact, construction jobs represented 483 jobs or 6.8% of total wage employment in the Borough in 2000. Construction employment in the area peaked in 1996 with 711 jobs and then quickly decreased and stayed at about 400 jobs until 1999. There was a slight increase in construction employment from 1999 to 2000—16.1% or 67 jobs. Historically, employment in the construction sector increased from 375 jobs in 1988 to 483 jobs in 2000—a gain of 108 jobs and an average annual rate of growth of 2.1%.

Figure 7 depicts historic and projected employment through 2025 for the construction sector in the low-, base-, and high-case scenarios. The complete scenarios are presented in Section 6.0 of the document—the bulleted items that follow Figure 7 describe the scenario elements that specifically pertain to the construction sector.

Figure 7. Historic and Projected Employment in the Ketchikan Gateway Borough Construction Sector, 1988-2025



Scenario Assumptions:

- **Low Case.** Construction employment continues its decline through 2005 in response to the pulp mill closure and reduced road building for timber harvests. Planned construction projects result in slight increases in construction employment after 2005. Employment grows modestly annually after that date in response to population growth and other activities.

- **Base Case**. Construction employment continues its decline through 2004 in response to the pulp mill closure and reduced road building for timber harvests. Planned construction projects such as an aquarium, various highway and road projects, and additional facilities for the shipyard cause employment to grow annually after 2004 in response to population growth and other activities.

- **High Case**. Construction employment continues a slight decline through 2005 in response to the pulp mill closure and reduced roadbuilding for timber harvests. Planned construction projects such as an aquarium, various highway and road projects, and additional facilities for the shipyard causes employment to continue to grow after 2005 at a rate commensurate with population growth and other activities through the remainder of the study period.

3.0 Employment Trends

Recent employment changes in the Borough are mostly due to the 1997 closure of the pulp mill and the decline of the timber industry. Changes in the forest products industry are the primary cause of fluctuations in total employment in the POW/Outer Ketchikan area.

The number of jobs in the Ketchikan Gateway Borough increased from 1980 until 1995 and began to decrease after 1995. In 1980, the total number of jobs was 5,842, compared to 7,118 in 2000—an overall increase of 21.8% for the 20-year period. Employment increased from 5,842 in 1980 to 7,981 in 1995, a change of 36.6%, and then decreased by 10.8% to 7,118 in 2000. It is clear that drastic reductions after 1995 had a significant effect on the overall growth of employment. Employment in the POW/Outer Ketchikan Census Area steadily increased, from 1,278 jobs in 1980 to 2,239 jobs in 1991. After 1991, employment began to fluctuate, resulting in an employment level of 2,035 in 2000.

Local residents have perceptions about future employment growth in Ketchikan, as evidenced by their comments about major industry sectors. Residents also mentioned industries such as mining and entrepreneurial ideas such as the production of bottled or fresh water that could contribute to growth in the community. Many residents believe that mining will develop further in the region, with Ketchikan functioning as a support center for the industry. However, there are considerable differences of opinion about the timing for mine development.

Residents suggested a wide variety of entrepreneurial ideas that could be pursued by local residents. Most of the enterprises would have minor levels of employment and have been incorporated into the scenarios with the general growth trends for industry sectors.

4.0 Population Trends

In recent years, many changes have affected the Ketchikan area population, including the March 1997 pulp mill closure, timber industry decline, growth of the Ketchikan Shipyard, and rise of the tourism industry. From 1990 to 2000, the population of the Ketchikan Gateway Borough, including the cities of Ketchikan and Saxman and outlying communities, showed an overall increase of 1.8%, from 13,828 to 14,070 people. The borough population increased annually from 1990, reaching a peak of 14,764 in 1995, and then began to decline.

From 1990 to 2000, Ketchikan city population decreased, from 8,263 people to 7,922 people, or by 4.1%. The population of the POW/Outer Ketchikan Census Area decreased by 2.1% from 1990 to 2000, from 6,278 to 6,146 people. Population decline in the area is largely a result of the pulp mill closure in Ketchikan and the issuance in 1997 of the TLMP, which reduced allowable harvest levels.

Some residents believe that the area could be attractive as a possible retirement community, but that concept has not been assumed or modeled in this analysis.

5.0 Personal Income Trends

Personal income statistics are a function of several factors, including employment and population, and are an important indicator of an area's economic well being. If personal income declines, the decline indicates that the economy cannot sustain as many support sector jobs as it did previously.

The most recent data from the U.S. Bureau of Economic Analysis indicate that personal income increased in the Ketchikan Gateway Borough from 1969 until 1999; overall, in the Ketchikan Gateway Borough, total nominal (not adjusted for inflation) personal income increased by 911%, from $45.2 million in 1969 to $456.9 million in 1999. Personal income in the POW/Outer Ketchikan Census Area also increased from 1979 until 1999; overall, total nominal personal income in the area increased by 244%, from $38.1 million in 1979 to $130.9 million in 1999.

6.0 Development Scenarios

The following development scenarios—a range of possible alternative futures—describe factors such as population, employment, and changes in major industrial sectors that could influence vehicle traffic levels for possible access alternatives in Ketchikan. These scenarios have been developed from a number of different information sources, including a review of current socioeconomic information and interviews with a variety of people in the area.

The low, base, and high scenarios are products of available information and the opinions of those involved in the community. The following projections are based on Borough data—it is anticipated that economic indicators in the POW/Outer Ketchikan Census Area will behave in the same way as in the borough because of the similar economic structures of the two areas.

Low Case. The low case results in a population of 16,624 in the Ketchikan Gateway Borough in 2025. This number reflects a compound annual growth rate of approximately 0.67% from a 2000 population of 14,070, and is slightly higher than the growth rate that occurred between 1960 and 1995 (0.63%). The low case results in total employment of 7,379 in 2025. The assumptions behind this projected growth rate are as follows:

- There is no change in the current level of mining industry effects on Ketchikan.
- There is a downward trend in Tongass timber harvests due to administrative action and lawsuits. One mill in the Ketchikan area closes by the year when improved access is available, and employment in forest products sectors declines through 2005. After that date, value-added manufacturing of forest products results in modest employment gains.
- A USFS timber sale on Gravina Island results in timber harvest by local mills but no road access to the airport. The volume of the sale is not large enough to affect industry in Ketchikan.
- The Inter-island Ferry Association (IFA) ferry service and improved AMHS service strengthen ties between Ketchikan, Metlakatla, and POW. Businesses in Ketchikan improve the area's position as a regional center with more frequent ferry service, and employment subsequently increases in the trade and services sectors at a modest rate. The services sector includes the hospital and clinic that are significant employers in the area. Over time, growth in tourism and closer integration with POW and other areas offset the employment losses in the trade and services sectors associated with the pulp mill closure.

- There is no significant near-term change in seafood harvesting or the type of processing activities, and employment declines annually through 2002 due to competition from global competitors and increased productivity. After that date, additional value-added seafood processing and new fisheries result in modest employment gains.

- Tourism expenditures in Ketchikan increase at 3% annually through 2005 due to new venues, at 2% through 2010, and at 1% for the balance of the study period. This growth is driven primarily by additional cruise ship calls.

- State revenues decline and state government spending and employment (which includes university employment) decline slightly. Federal spending and employment also decline slightly as USFS employment is reduced concurrently with fewer timber sales. Consolidation succeeds and local government employment (which includes school district employment) and expenditures decline to meet budget constraints through 2005. The Long Range Aid to Navigation (LORAN) Station at Shoal Cove closes in 2010 and 25 U.S. Coast Guard positions are eliminated. After that date, government employment increases in response to population growth and stabilized timber harvests.

- Construction employment continues its decline through 2005 in response to the pulp mill closure and reduced road building for timber harvests. Planned construction projects result in slight increases in construction employment after 2005. Employment grows modestly annually after that date in response to population growth and other activities.

- Capital improvements at the Ketchikan Shipyard result in employment increasing quickly through 2005, with modest employment growth after that date.

Base Case. The base case results in a population of 18,225 people in the Ketchikan Gateway Borough in 2025. This figure represents a compound annual growth rate of 1.04% from a 2000 population of 14,070 and is slightly higher than the growth rate that occurred between 1950 and 1995 (1.0%). The base-case scenario results in total employment of 8,377 in 2025. The assumptions behind this projected growth rate are as follows:

- A major mine is developed in the area by 2010 and supported from Ketchikan, with Ketchikan businesses providing most goods and services.

- A USFS timber sale on Gravina Island results in road access to the interior of the island from the airport area by 2005. A limited number of additional recreational facilities (for example, cabins and trails) are developed on Gravina Island.

- The timber harvest road on Gravina Island is upgraded by the year when improved access is available and IFA ferries call at a new terminal (either in Vallenar Bay or on the northeast end of Tongass Narrows) 3 years later. AMHS ferries continue to call at the Ketchikan terminal.

- The IFA ferry service and improved AMHS service strengthen ties among Ketchikan, Metlakatla, and POW, and the possibility of a daily link to Prince Rupert exists after 2010. Businesses in Ketchikan improve the area’s position as a regional center, and employment in the trade and services sectors increases more rapidly than the historical growth rate. The services sector, in which growth is dependent on assumptions about the various industry sectors, includes the hospital and clinic, which are significant employers in the area.

- A new cruise ship dock is constructed to accommodate additional cruise ships calling in Ketchikan, and the growth of tourism and closer integration with POW and other areas more than offsets the losses associated with the pulp mill closure. Tourism expenditures in

Ketchikan increase at 4% annually from 2001 through 2005 due to new venues and the additional cruise ship dock, by 3% annually through 2010, and moderately for the balance of the study period. This growth is driven by the new dock, additional cruise ship calls, and independent travelers who are attracted to the area by the new AMHS dayboat ferry service and IFA ferry service.

- Tongass timber harvests stabilize and a new veneer plant with about 70 new jobs opens during 2001. Mills share harvests from timber sales, and the timber is distributed according to which mill is best suited to process certain types of logs. Employment in the forest products sector increases modestly after the veneer plant opens.

- There is no significant change in seafood harvesting and processing activities. Minor increases in value-added seafood processing result in modest employment increases.

- A road to the Leask Lakes and Shelter Cove areas on Revilla Island is developed later in the study period (between 2020 and 2025).

- State revenues stabilize and state government spending and employment change little over the duration of the study period. The LORAN Station at Shoal Cove becomes remotely operated in 2010, and 20 U.S. Coast Guard positions are eliminated. Consolidation succeeds and local government spending and employment stabilize with consolidation. Government employment increases after 2010 in response to population growth and other activities.

- Construction employment continues its decline through 2004 in response to the pulp mill closure and reduced road building for timber harvests. Planned construction projects such as an aquarium, various highway and road projects, and additional facilities for the shipyard cause employment to grow annually after 2004 in response to population growth and other activities.

- Capital improvements, including a second shiplift and facilities to lay up vessels during the winter, result in robust employment increases at the shipyard through 2009 and modest increases in employment after that date.

High Case. The high case results in a population of 23,478 in the Ketchikan Gateway Borough in 2025. This figure represents a compound annual growth rate of 2.07% from a 2000 population of 14,070, and is slightly higher than the annual growth rate of 2.03% that occurred between 1980 and 1990. The high-case scenario results in a total employment level of 11,091 in 2025. The assumptions behind this projected growth rate are as follows:

- Two major mines are developed in the Ketchikan area or on POW Island. One mine is developed by 2010 and the second by 2015. Ketchikan businesses provide most goods and services for these developments.

- A USFS timber sale on Gravina Island results in road access to the interior of the island from the airport area by 2005. An extensive network of recreational facilities (for example, trails, campgrounds, boat launches) is developed on Gravina Island.

- AMHS and IFA ferries use a new ferry terminal (either in Vallenar Bay or on the northeast end of Tongass Narrows) one year after improved access is available. AMHS mainline ferries continue to use the Ketchikan terminal.

- The IFA ferry service and improved AMHS service strengthens ties among Ketchikan, Metlakatla, and POW, and the possibility of a daily link to Prince Rupert exists after 2005. Businesses in Ketchikan improve the area's position as a regional center, and the trade and services sectors expand to meet the needs of a closely integrated economic area (Ketchikan, Outer Ketchikan, and POW). The services sector, in which growth is dependent on assumptions about the various industry sectors, includes the hospital and clinic, which are significant employers in the area. A new cruise ship dock is constructed to accommodate additional cruise ships calling in Ketchikan. The growth of tourism and closer integration with Prince of Wales and other areas result in employment increasing at a robust rate for 5 years after the new ferry terminal is developed and moderating after that time.

- Tongass timber sales are planned to assist the forest products industry and timber harvests increase from current levels. A new veneer plant and a centralized sorting yard opens between 2001 and 2003. Loggers reside in Ketchikan and commute to work during the workweek rather than live in camps. New value-added manufacturing expands near the existing and new mills. Employment in the forest products sector increases substantially through about 2005 and then moderates for the balance of the study period.

- Several new nontraditional fisheries develop or expand in the Ketchikan area. Value-added processing, a new fish meal plant, and new fisheries result in moderate employment gains for the seafood industry.

- Tourism expenditures in Ketchikan increase at 7% annually through 2002, at 5% through 2010 due to new venues (an aquarium in the near term and a golf course and ski area in the long term) and the additional cruise ship dock, and moderately for the balance of the study period. This growth is driven by a new cruise ship dock, additional cruise ship calls, and independent travelers who are attracted to the area by the new AMHS dayboat ferry service and IFA ferry service.

- A road to the Leask Lakes and Shelter Cove areas on Revilla Island is developed after 2010.

- State revenues stabilize early in this decade with changes in the state's fiscal system. State government spending begins to increase with that change. Federal spending and employment stabilize at current levels and begin to increase after about 2001 with the onset of larger timber harvests that are anticipated to be close to TLMP levels. Consolidation fails and no change in local government employment occurs in the near term. In the long term, employment increases over time in response to population growth and the provision of additional services.

- Construction employment continues a slight decline through 2005 in response to the pulp mill closure and reduced roadbuilding for timber harvests. Planned construction projects such as an aquarium, various highway and road projects, and additional facilities for the shipyard causes employment to continue to grow after 2005 at a rate commensurate with population growth and other activities through the remainder of the study period.

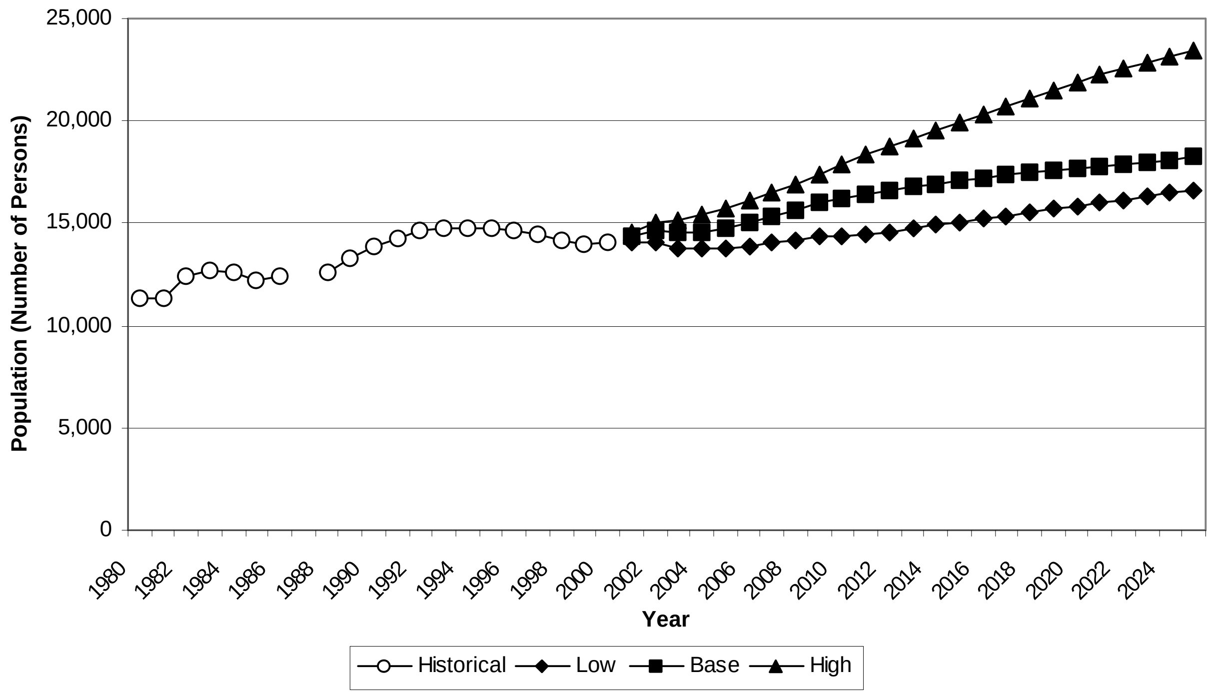
- A new shiplift and other capital improvements, including facilities to lay up vessels during the winter and to undertake new vessel construction, result in the shipyard almost doubling employment by 2005, with modest increases in employment after that date.

7.0 Population and Employment Forecasts

The development scenarios in the previous section represent assumptions about possible changes that could occur in major industries in Ketchikan's economy. The scenarios help to provide a basis from which future population and employment levels can be projected. Based on historical data and the low-, base-, and high-case scenarios, this section depicts actual and projected population and employment levels in the Ketchikan Gateway Borough through 2025. Section 7.1, Population Forecasts, and Section 7.2, Employment Forecasts, each consist of a graph showing historical data and projections and a table, which depicts the projected population and employment levels.

7.1 Population Forecasts

Figure 8. Historical and Projected Population in the Ketchikan Gateway Borough, 1980-2025



Source of historical data: DOLWD, 2001.

Note: DOLWD did not make community-wide population estimates in 1987.

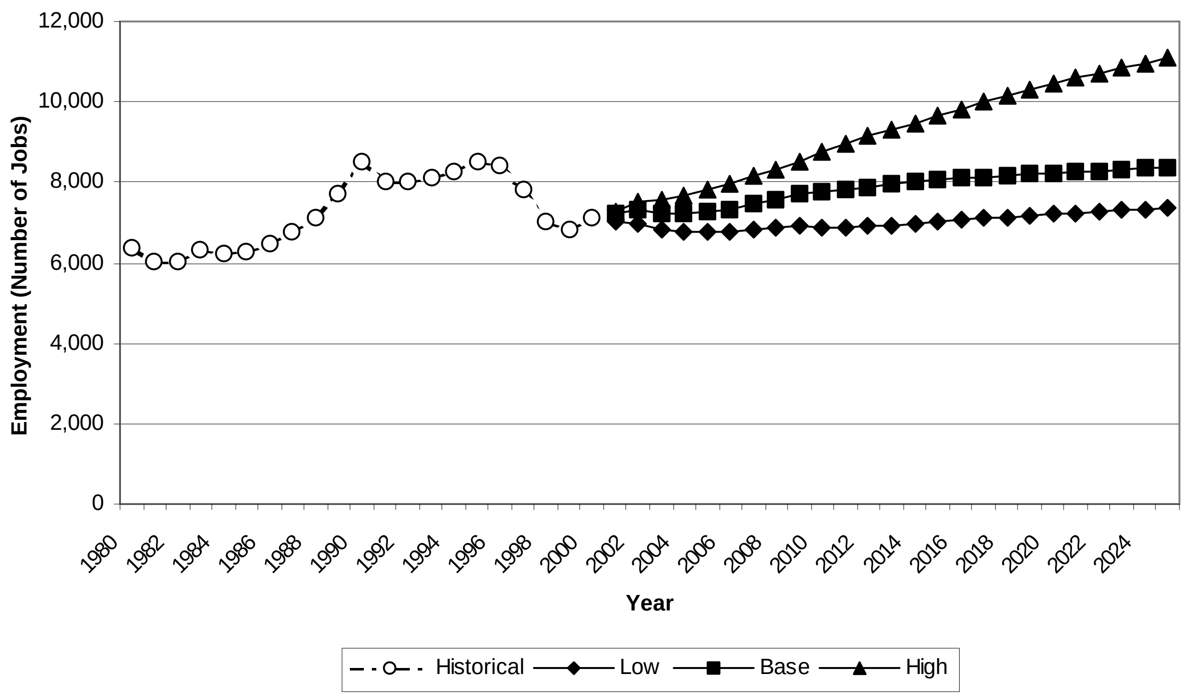
Table 1. Actual and Projected Population in the Ketchikan Gateway Borough, 2000-2025

Year	Actual and Projected Population (Number of Persons)		
	Low Case	Base Case	High Case
2000 (actual)		14,070	
2005	13,806	14,787	15,741
2010	14,380	16,206	17,877
2015	15,063	17,092	19,933
2020	15,827	17,679	21,871
2025	16,624	18,225	23,478

Source: Northern Economics projections based on DOLWD historical data.

7.2 Employment Forecasts

Figure 9. Historical and Projected Employment in the Ketchikan Gateway Borough, 1980-2025



Source of historical data: DOLWD, 2001.

Table 2. Actual and Projected Employment in the Ketchikan Gateway Borough, 2000-2025

Year	Actual and Projected Employment (Number of Jobs)		
	Low Case	**Base Case**	**High Case**
2000 (actual)		7,118	
2005	6,771	7,252	7,816
2010	6,879	7,752	8,767
2015	7,028	8,055	9,654
2020	7,202	8,228	10,461
2025	7,379	8,377	11,091

Source: Northern Economics projections based on DOLWD historical data.

Table 3. Projected Change in Employment in the Ketchikan Gateway Borough by Industry, 2000-2025

Industry	Change in Employment (Number of Jobs)		
	Low Case	**Base Case**	**High Case**
Forest Products	61	192	318
Seafood	56	125	311
Construction	-16	6	230
Shipyard	64	101	110
Trade	-48	147	665
Services	-83	255	1,150
Government	222	406	1,096
Other Industry	3	25	92
Total Change in Employment	**259**	**1257**	**3,972**

Source: Northern Economics projections based on DOLWD historical data.

8.0 Projected Land Use Requirements

The economic forecasts for the future of Ketchikan describe changes in the employment levels of major industrial sectors and changes in population in the Ketchikan area. The element of the scenarios examined in this section is the additional land acreage that will be required based on projections made in the low, base, and high cases. There are four types of land requirements that are addressed: industrial, commercial, residential, and land for community uses. Table 4 depicts the figures used to calculate the additional land requirements in this section. Included in the table is the number of employees per acre in the various industrial and commercial sectors and the number of persons per acre for residential and community land.

Table 4. Industrial, Commercial, Residential, and Community Land Required per Employee/Person

Type of Land Use	Employees/Persons per Acre
Industrial and Commercial:	
Forest Products	8.0
Seafood	25.0
Construction	8.0
Shipyard	8.0
Trade	43.5
Services	43.5
Government	58.8
Other Industry	10.0
Residential[a]	2.7 to 27.0
Community	367.6

Source: *Principles and Practice of Urban Planning*, 1968; *The Cost of Sprawl*, 1974; *The Fiscal Impact Guidebook*, n.d.; *Urban Land Use Planning*, 1995.

Note:

[a] This range is based on the assumption that density could range from 1.0 dwelling unit per acre to 10 dwelling units per acre and on the 1990 Census estimate of 2.7 people per household in the Ketchikan Gateway Borough. This information is available at www.dced.state.ak.us/mra/CF_BLOCK.htm.

8.1 Industrial and Commercial Land Use Requirements

Table 5 illustrates how much additional land will be needed in 2025 for each scenario. These estimates are based on the land requirements shown in Table 4 for the number of employees per acre for different industries and assumptions regarding the projected employment in each sector in 2025.

Low Case. In the low case scenario, industrial uses will require approximately 44.0 additional acres of land in 2025. Commercial uses, including the government sector, will require 33.4 additional acres in the low case, for a total of about 77.4 acres in 2025.

Base Case. In the base case scenario, industrial uses will require approximately 145.3 additional acres of land in 2025. Commercial uses, including the government sector, will require 294.0 additional acres in the base case, for a total of about 439.3 acres in 2025.

High Case. In the high case scenario, industrial uses will require approximately 404.0 additional acres of land in 2025. Commercial uses, including the government sector, will require 1,058.7 additional acres in the high case, for a total of about 1,462.7 acres in 2025.

Table 5. Projected Requirements for Additional Commercial and Industrial Land, 2025

Industry	Additional Acres Needed		
	Low Case	Base Case	High Case
Forest Products	25.6	80.1	132.3
Seafood	23.5	52.1	129.7
Construction	-6.5	2.6	95.9
Shipyard[a]	0	0.0	7.8
Other Industry	1.4	10.6	38.3
Total Industrial	**44.0**	**145.3**	**404.0**
Trade	-17.4	53.6	241.9
Services	-30.1	92.7	418.3
Government	80.9	147.6	398.5
Total Commercial	**33.4**	**294.0**	**1,058.7**
Total Additional Acres Needed	**77.4**	**439.3**	**1,462.7**

Note:

[a] In the low- and base-case scenarios, an assumption was made that no additional land would be required at the shipyard. To provide the additional acreage required in the high case, the projected additional land requirement was calculated using the 8 employees/acre figure and then subtracting the 6 approximate acres of land currently available to the shipyard but being used for van storage and other non-shipyard uses.

8.2 Residential Land Use Requirements

The amount of additional land required for residential use is dependent on future policy decisions by the Ketchikan Gateway Borough or the City of Ketchikan regarding the density of development. Density could range from 1.0 dwelling unit per acre to 10 dwelling units per acre, depending on the land use policies adopted by the local governments. The additional number of households is based on the assumption that there are 2.56 people per household. Table 6 illustrates the projected additional residential land use that will be required by 2025, the end of our study period.

Table 6. Projected Requirements for Additional Residential Land, 2025

	Additional Acres Needed		
	Low Case	Base Case	High Case
Range of Expected Residential Land Requirement	**99.8-997.7**	**162.3-1,623.0**	**367.5-3,674.8**

Source: Northern Economics projections based on *The Fiscal Impact Guidebook*, n.d.; *The Cost of Sprawl*, 1974; and *Urban Land Use Planning*, 1995.

Low Case. Based on the assumed range of housing density and an increase in population of 2,554 persons (998 households), the Ketchikan area would require an additional 99.8 to 997.7 acres of land for residential use by 2025 in the low case.

Base Case. Based on the assumed range of housing density and an increase in population of 4,155 persons (1,623 households), the Ketchikan area would require an additional 162.3 to 1,623.0 acres of land for residential use by 2025 in the base case.

High Case. Based on the assumed range of housing density and an increase in population of 9,408 persons (3,675) households, the Ketchikan area would require an additional 367.5 to 3,674.8 acres of land for residential use by 2025 in the high case.

8.3 Community Land Use Requirement

More neighborhood and community facilities will be required as the population of the Ketchikan area grows. Community facilities include school sites, playgrounds, and parks. Based on our projections for population growth and the assumption that approximately 2.72 acres of land for these uses is required for every 1,000 persons—or 1 acre of community land for every 367.6 people—Table 7 illustrates the projected additional land requirements in the low-, base-, and high-case scenarios.

Table 7. Total Projected Requirements for Additional Community Land, 2025

	Additional Acres Needed		
	Low Case	**Base Case**	**High Case**
Expected Community Facilities Land Requirement	**6.9**	**11.3**	**25.6**

Source: Northern Economics projections based on *Principles and Practice of Urban Planning*, 1968.

Low Case. Based on a population increase of 2,554 persons, the Ketchikan area would require an additional 6.9 acres of land for community uses by the year 2025 in the low case.

Base Case. Based on a population increase of 4,155 persons, the Ketchikan area would require an additional 11.3 acres of land for community uses by the year 2025 in the base case.

High Case. Based on a population increase of 9,408 persons, the Ketchikan area would require an additional 25.6 acres of land for community uses by the year 2025 in the high case.

8.4 Total Land Use Requirements

Table 8. Total Projected Requirements for All Additional Land, 2025

Type of Land Required	Additional Acres Needed		
	Low Case	**Base Case**	**High Case**
Commercial[a]	33.4	294.0	1,058.7
Industrial[b]	44.0	145.3	404.0
Residential	99.8 to 997.7	162.3 to 1,623.0	367.5 to 3,674.8
Community	6.9	11.3	25.6
Total Additional Acres Needed	**184.1 to 1,082.0**	**612.9 to 2,073.6**	**1,855.8to 5,163.1**

Source: Northern Economics, 2001.

Notes:

[a] Commercial includes the trade, services, and government sectors.

[b] Industrial includes the forest products, seafood, shipyard, construction, and other industry sectors.

Appendix A. Personal Interviews and Focus Group Members

Name		**Organization**
Charlie	Allen	Tyler Rental
Sol	Atkinson	Mayor of Metlakatla
Calvin	Bakk	Bakk Construction Insulation
Jim	Barry	Porter-Spaulding Insurance Agents
Bill	Bolling	Gateway City Realty
Don	Charles	Southeast Alaska Pilots
John	Clifton	First Bank
Chuck	Dearden	Gold Coast Builders
Susan	Dickenson	Ketchikan Gateway Borough Planning Department
Dave	Donovan	Donovan Construction
Bill	Elberson	REMAX
Joe	Everhard	National Bank of Alaska
Tom	Fabry	Landowner on Gravina Island
Dave	Fletcher	United States Forest Service
Colleen	Grundy	United States Forest Service
Rupert J.	Henry	Ketchikan Gateway Borough Department of Assessment
John	Hill	Ketchikan Gateway Borough Planning Department
Lisa	Holzapfel	Alaska Mental Health Land Trust Office
Trish	Hoover	Hoover & Associates
John	Hozzy	Ketchikan Gateway Borough Assistant Borough Manager
Jerry	Ingersoll	United States Forest Service
Shari	Irizarry	Ketchikan Gateway Borough Department of Assessment
Bob	Jackson	Gateway City Realty
Michelle	Kiefer	Hoover & Associates
Mary	Kowalczyk	Alaska State Parks
Dick	Leary	Gateway Forest Products
Patty	Mackey	Ketchikan Visitors Bureau
Ray	Matiashowski	Gateway City Realty
John	Matsuura	Matsu Alaska Enterprises
David	Means	Ketchikan Gateway Borough School District
Guy	Mickel	REMAX
Kathy and Brad	Miller	Landowners on Gravina Island
Ed	Mondt	Ketchikan Hospital
Andy	Rauwolf	Tongass Construction Co.
P. Kelley	Roth	PK Builders
Pam	Roth	Ketchikan Home Builders Association
Karen and Rich	Schuerer	Pennock Island Residents
Steve	Seley	Business Owner
Leif	Stenfjord	Tongass Realty
Roger	Stone	Tongass Realty
Andy	Tagliaferri	D.D. Becket Co.
Jim	Voetberg	City of Ketchikan Assistant City Manager
Doug	Ward	Alaska Ship & Drydock, Inc.
Christy	Wood	Gateway City Realty
Zig	Ziegler	Tongass Realty
Dan	Zink	Zink Brothers, Inc.